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PROCEEDINGS AT THE MEETINGS OF THE PHYSICAL SOCIETY

SESSION 1934–35

Except where the contrary is stated the meetings were held at the Imperial College of Science and Technology, South Kensington, the President being in the Chair.

October 19, 1934.

The President announced that the Council had elected the following to Student Membership of the Society: Gordon Lennox James Bailey, G. W. T. Bird, Philip Sydney Brown, Ronald Bruce, Kenneth John Coppin, Mauekj Dhauji Dand, F. H. D. Eades, Edward Waddington Foster, William Gerald Harper, Kenneth Albert Harwood, Frank Holmes, Leonard House, Arnold Stanley Knight, Herbert Kolsky, George James Kynch, George Henry Lean, John Louis Michiels, Bryan Oliver Payne, Harry Plummer, Ivor William Ramsay, Thomas Henry Redding, M. A. Samad, Leslie Hamilton Tarrant, E. J. Whitmore.

The following presentation to the Joint Library was announced from the Chair as having been received since the last meeting; the thanks of the Society was accorded to the donor:

HOARE, F. E., *A Textbook of Thermodynamics*. Presented by the author.

The following papers were read:

"Velocity of sound in sheet materials. Chladni's figures at high frequencies," by A. B. WOOD, D.Sc., F.Inst.P. and F. D. SMITH.

"The measurement of loudness," by N. R. CAMPBELL, Sc.D., F.Inst.P. and G. C. MARRIS. *Followed by a discussion.*

A demonstration of simple apparatus for measuring the pull between two magnetized surfaces was given by Professor J. T. MACGREGOR-MORRIS, M.I.E.E. and Mr C. R. STONER, B.Sc. (Eng.), A.M.I.E.E.

November 2, 1934.

The following were elected to the Fellowship of the Society: Edmond van Aubel, Thomas Lydwell Eckersley, Leonard Frederick Ennever, William Francis Harling, Alfred Leonard Green, Maurice Milbourn, William Douglas Oliphant, Percy Watson Perryman, Basil Ferdinand Jamieson Schonland, Frank Arthur Short, Arthur Simons.

The following papers were read:

"A study of oxide films on liquid metals by electron-diffraction," by R. O. JENKINS, A.R.C.S., B.Sc.

"Electronic theory and the magnetron oscillator," by E. W. BENHAM.

The following papers were read in title:

"The absolute measurement of electrical resistance by a new rotating-coil method," by H. R. NETTLETON, D.Sc. and E. G. BALLS, M.C., B.Sc., A.I.C.

"A new precision tintometer," by J. J. MANLEY, M.A., D.Sc.

"The propagation of medium radio waves in the ionosphere," by D. F. MARTYN, Ph.D., A.R.C.Sc.

"Long-distance observations of radio waves of medium frequencies," by D. F. MARTYN, Ph.D., A.R.C.Sc., R. O. CHERRY, M.Sc. and A. L. GREEN, Ph.D.

November 16, 1934.

The following were elected to the Fellowship of the Society: Charles Drummond Ellis, Donald Harry Smith, H. L. Brooke Woodyatt.

The President announced that Bhunthin Attagara and Keshab L. Chatterjee had been admitted to Student Membership of the Society.

The following papers were read:

"On the behaviour of suspended particles in air, and the velocity of sound at supersonic frequencies," by E. B. PEARSON. (With demonstration.)

"The use of micro-photometric methods in divided beam spectrophotometry," by D. H. FOLLETT, M.A., A.Inst.P.

The following papers were read in title:

"The energy of agitation of positive ions in argon," by F. LLEWELLYN JONES, M.A., D.Phil.

"The computation of the integrals required in mutual-inductance calculations," by N. F. ASTBURY, M.A.

"On observations of points connected by a linear graph," by Miss B. M. DENT, M.Sc.

A demonstration on the velocity of sound in sheet materials was given by A. B. WOOD, D.Sc., F.Inst.P. and F. D. SMITH.

December 7, 1934.

The following were elected to the Fellowship of the Society: Ursula Andrewes, Mark Benjamin, Robert Roscoe, William Stanley Mabe (transfer).

The following paper was read:

"An interference extensometer and some observations on the elasticity of lead," by BRUCE CHALMERS, B.Sc., Ph.D.

The following papers were read in title:

"The magnetic properties of amorphous manganese," by L. F. BATES, D.Sc., Ph.D., F.Inst.P. and D. V. REDDI PANTULU, B.Sc.

"Colour-vision characteristics of two trichromats," by W. D. WRIGHT, D.Sc., Ph.D., A.R.C.S., D.I.C. and F. H. G. PITT, A.R.C.S., D.I.C., B.Sc.

"On the potential acquired in the natural electric field by a vertical rod standing on the ground, insulated at the bottom and carrying a collector at the top," by L. H. G. DINES, M.A.

"The band systems of cadmium fluoride," by R. K. ASUNDI, R. SAMUEL and M. ZAKIUDDIN.

"Rotational analysis of the ultra-violet bands of phosphorus monoxide," by A. K. SEN GUPTA.

"Time-marking a cathode-ray oscillograph by means of harmonics," by L. F. RICHARDSON, B.A., D.Sc., F.Inst.P., F.R.S.

The following demonstrations were given:

A demonstration of the properties of mumetal as applied in an earth inductor compass, by Captain O. E. CHAPMAN.

A demonstration of apparatus for the measurement of the viscosity of liquids at high pressures, by C. C. MASON, O.B.E., M.A., F.Inst.P. (By the courtesy of the Burmah Oil Company, Ltd.)

December 21, 1934.

Meeting held at the Northampton Polytechnic Institute, St John Street, E.C. 1 by invitation of the Principal.

The following papers were read:

"Ionization charts of the upper atmosphere: Part II," by G. MILLINGTON, M.A., B.Sc.

"Some experiments on electronic oscillations," by W. A. LEYSHON, Ph.D., F.Inst.P.

The following papers were read in title:

"Models of the superposition and interpenetration of components in gas mixtures adsorbed upon thermionic, photoelectric and catalytic surfaces: Part I, Principles," by M. C. JOHNSON, M.A., D.Sc., A.Inst.P.

"Adsorption of gases on mercury," by R. S. BURDON, B.Sc., F.Inst.P.

"Convergent polarized light and Hertz's problem for a uniaxial material," by F. F. P. BISACRE, M.A., B.Sc.

January 1, 2, 3, 1935.

The Twenty-fifth Annual Exhibition was held at the Imperial College of Science. The following discourses were delivered:

"The Architecture of Molecules," by B. WHEELER ROBINSON, M.A., Ph.D.

"The Problem of Ether Drift," by C. V. Drysdale, C.B., O.B.E., D.Sc., M.I.E.E., F.Inst.P.

"Giant Telescopes," by H. Spencer Jones, M.A., Sc.D., F.R.S.

January 18, 1935.

The following were elected to the Fellowship of the Society: Walter Betteridge, Leslie Giddens Brazier, Vivian Frederick Davey, W. E. Duncanson.

The President announced that the Council had elected James Henry Herbert Merriman to Student Membership of the Society.

Prizes and certificates awarded for the sixth competition in Craftsmanship and Draughtsmanship were presented.

An address was given by Mr W. Taylor, F.Inst.P., F.R.S., prepared by himself and Mr H. W. Lee, B.A., on "The Development of Photographic Lens Design."

February 1, 1935.

The following were elected to the Fellowship of the Society: P. M. S. Blackett, Charles Samuel Franklin, Henry Stafford Hatfield, A. W. Isenthal, Joseph Albert Lauwerys, Alexander D. McDonald, Charles Ernest Rickard, David A. Richards, George Reginald Stanbury, Ivor Willows Stray, Harold W. Thompson, F. W. G. White, Bernard George Whitmore, Dorothy Wrinch, Norman Lawrence Yates-Fish.

The Twentieth Guthrie Lecture was given by Professor A. H. Compton, of Chicago University, who took as his subject, "An attempt to analyse Cosmic Rays."

February 15, 1935.

The following were elected to the Fellowship of the Society: Richard Ablett, Herbert Langerman Crook, Kenneth Macfadyen, Harold Miller, David Evered Harrell Jones (transfer), Frederick Henry George Pitt (transfer).

The following papers were read:

"On a theory of the action of rectangular short-wave frame aerials," by L. S. Palmer, D.Sc., Ph.D., M.I.E.E., F.Inst.P. and Denis Taylor, M.Sc.

"On the current variations in a short-wave square frame aerial when revolving in its own plane," by L. S. Palmer, D.Sc., Ph.D., M.I.E.E., F.Inst.P. and R. Witty, B.Sc., A.Inst.P.

A demonstration of a relay that operates two circuits alternately with delayed action was given by D. S. Perfect, D.Sc.

March 1, 1935.

The following were elected to the Fellowship of the Society: Harold Albert Nancarrow, Eric Henry Dock (transfer).

The President announced that the Council had elected Gordon Edward Ashwell to Student Membership of the Society.

The following papers were read:

"Time and amplitude relations in seismology," by HAROLD JEFFREYS, F.R.S.

"A negative-resistance device and its application to harmonic analysis," by C. W. OATLEY, M.A., M.Sc.

The following papers were read in title:

"Rapid mathematical methods for trichromatic colorimetry," by J. G. HOLMES, A.R.C.S., B.Sc.

"Note on additional experiments on the effective rotation temperature of the negative glow in nitrogen," by N. THOMPSON, B.Sc.

"The band spectrum of beryllium monoxide," by A. HARVEY, Ph.D., F.Inst.P. and H. BELL, M.A.

"The efficiency of excitation of the nitrogen first positive bands by electron impact," by S. E. WILLIAMS, M.Sc.

The following demonstrations were given:

"Visible Frequency Valve-Instructor." A demonstration of some of the properties of a three-electrode valve at visible frequencies, by Professor H. F. TREWMAN, M.A., M.I.E.E.

"The C.R.O. Valve-Instructor." An application of the cathode ray oscillograph to instruction in the behaviour of thermionic valves in a variety of circuits, by G. F. NICHOLSON.

March 15, 1935.

Annual General Meeting.

The Minutes of the previous Annual General Meeting were read and accepted as correct.

The reports of the Council and Hon. Treasurer and the accounts were adopted.

The Officers and Council for 1935–6 and the Auditors were elected.

The Twelfth Duddell Medal was presented to Dr W. Ewart Williams.

Votes of thanks were accorded to the retiring Officers and Council and to the Governors of the Imperial College of Science and Technology.

Ordinary Meeting.

Robert Cockburn was elected to the Fellowship of the Society.

The President announced that the Council had elected Arthur Thomas Gill to Student Membership of the Society.

The following presentations to the Joint Library were announced from the Chair as having been received; the thanks of the Society were accorded to the donors:

LEVY, H. and BAGGOTT, E. A., *Numerical Studies in Differential Equations*. Vol. 1. Presented by Professor H. Levy.

CHILDS, W. H. J., *Physical Constants*. Presented by the author.

Philosophical Magazine, Nos. 214, 215. Presented by Major C. E. S. Phillips.

The following paper was read:

"The rectifier selenium-sulphur photoelectric cell," by G. P. BARNARD, B.Sc., A.Inst.P.

The following papers were read in title:

"Absolute intensities in the spectrum of quartz mercury arcs and their variation with temperature changes of the surrounding air," by A. J. MADDOCK, M.Sc., A.Inst.P.

"The band spectrum of vanadium oxide," by P. C. MAHANTI, M.Sc.

"A new method of measuring the time and efficiency of photographic shutters," by E. D. EYLES, B.Sc. and E. W. H. SELWYN, B.Sc., A.R.C.S., F.Inst.P.

April 5, 1935.

The following were elected to the Fellowship of the Society: Charles Alfred Coulson, Ifor Ceredig Jones, and Franz Simon.

The President announced that the Council had elected Madge G. Adam and Donald Martin Knight to Student Membership of the Society.

The following papers were read:

"The effect of pressure on supersonic dispersion in gases," by W. RAILSTON, M.Sc. and E. G. RICHARDSON, B.A., Ph.D., D.Sc.

"The effect of temperature on supersonic dispersion in gases," by H. L. PENMAN, M.Sc., A.Inst.P.

"The surface tension of a moving water sheet," by W. N. BOND, M.A., D.Sc., F.Inst.P. (With demonstration.)

The following paper was read in title:

"Magnetic susceptibility of cerium chloride in aqueous solution and its variation with temperature," by J. LIQUIER-MILWARD, D.Sc., Ph.D.

May 3, 1935.

John Stewart was elected to the Fellowship of the Society.

The following papers were read:

"Liquefaction of hydrogen by the expansion method," by F. SIMON, A. H. COOKE and H. PEARSON.

"On vortex motion in gaseous jets and the origin of their sensitivity to sound," by G. B. BROWN, M.Sc., Ph.D. (With demonstration.)

"A discussion of the transition metals on the basis of quantum mechanics," by N. F. Mott, M.A.

The following papers were read in title:

"Experiments relating to the distribution of alternating electric currents in the earth and the measurement of earth resistivity," by S. Whitehead, M.A., Ph.D., A.M.I.E.E., F.Inst.P. and W. G. Radley, B.Sc.

"The quantitative measurement of the intensity of X-ray reflections from crystalline powders," by J. C. M. Brentano, D.Sc., F.Inst.P.

"The direct measurement of the Peltier coefficient," by A. J. Woodall, B.Sc., Ph.D., A.Inst.P.

"The longitudinal thermoelectric effect: (2) Nickel in longitudinal magnetic fields," by T. H. Pi, M.Sc. and W. Band, M.Sc.

"The longitudinal thermoelectric effect: (3) Aluminium," by M. K. Li, M.Sc. and W. Band, M.Sc.

"The longitudinal thermoelectric effect: (4) Aluminium (*continued*)," by W. Band, M.Sc.

May 17, 1935.

The following were elected to the Fellowship of the Society: David Forbes Martyn, Eugene Bloch.

The following presentations to the Joint Library were announced from the Chair as having been received; the thanks of the Society were accorded to the donors:

Journal of the Institution of Electrical Engineers, Vols. 64 and 65. Presented by Mr W. H. Nottage.

Journal of the Institution of Electrical Engineers, Vol. 66. Presented by Mr Albert Campbell.

The following papers were read:

"The twinning of single crystals of tin," by Bruce Chalmers, B.Sc., Ph.D.

"An investigation of the wet and dry bulb hygrometer at low temperatures," by J. H. Awbery, B.A., B.Sc., F.Inst.P. and Ezer Griffiths, D.Sc., F.Inst.P., F.R.S.

The following papers were read in title:

"Comparison of X-ray wave-lengths by the plane grating vacuum spectrograph and the structure of the *K* line of carbon," by D. P. R. Petrie, M.Sc.

"A spectrographic examination of arcs between plain soot carbons and its connection with the candle-power per ampere of the positive crater," by J. T. MacGregor-Morris, M.I.E.E. and D. E. H. Jones, M.Sc., A.Inst.P.

"Spherical sound waves of finite amplitude," by N. W. McLachlan, D.Sc., M.I.E.E. and A. L. Meyers, B.Sc., A.M.I.E.E.

"The temperature variation of the viscosity of aqueous solutions of strong electrolytes," by W. J. Sulston, B.Sc., A.Inst.P.

June 7, 1935.

Dorothy Jessie Alexander was elected to the Fellowship of the Society.

The President announced that the Council had elected the following to Student Membership of the Society: Arthur Hafford Cooke, Raymond Frederick Cyster, Samuel Silver, Abraham Yanovsky.

The following papers were read:

"A correction to the theory of the Rayleigh disc. Measurement of sound intensity in water," by A. B. Wood, D.Sc., F.Inst.P.

"Experimental determination of the frequencies of free circular plates," by A. B. Wood, D.Sc., F.Inst.P.

"The statistical theory of errors," by N. R. Campbell, Sc.D., F.Inst.P.

The following papers were read in title:

"The breakdown of dielectrics under high voltage, with particular reference to thermal instability," by S. Whitehead, M.A., Ph.D., A.M.I.E.E., F.Inst.P. and W. Nethercot, M.A., B.Sc.

"The variation of voltage distribution and of electron transit time with current in the planar diode," by R. Cockburn, B.Sc.

"The electrical conductivity of some strong electrolytes in dilute solution, and its variation over the temperature range 18° C. to 25° C.," by C. J. B. Clews, B.Sc., A.Inst.P.

"An improved counting circuit," by H. P. Barasch.

June 21, 1935.

The following papers were read:

"A null dynamometer method of measuring the inductance and the effective resistance of iron-cored chokes carrying direct current," by G. D. Pegler, B.Sc.

"The electrical properties of soil at frequencies up to 100 megacycles per second (with a note on the resistivity of ground in the United Kingdom)," by R. L. Smith-Rose, D.Sc., Ph.D., A.M.I.E.E.

The following papers were read in title:

"The lattice dimensions of zinc oxide," by C. W. Bunn.

"The structure of the ionosphere," by J. Hollingworth, M.A., D.Sc., M.I.E.E.

"The effect of the aeration of the water used in the determination of the mechanical equivalent of heat," by T. H. Laby, M.A., Sc.D., F.Inst.P., F.R.S. and E. O. Hercus, D.Sc., F.Inst.P.

"Longitudinal thermoelectric effect (5) Silver," by J. L. Ch'en, M.S. and W. Band, M.Sc.

"Thermomagnetic hysteresis of nickel," by Y. K. Hsü, M.S. and W. Band, M.Sc.

REPORT OF COUNCIL FOR THE YEAR ENDING FEBRUARY 28, 1935

MEETINGS

During the period under review 14 Ordinary Science Meetings were held at the Imperial College of Science and Technology. At these meetings 56 papers were presented and 7 demonstrations given.

A Science Meeting was held on December 21, 1934, at the Northampton Polytechnic Institute, by the kind invitation of the Principal, Mr S. C. Laws, and a number of demonstrations were given in the laboratories of the Institute.

On January 18, 1935, Mr William Taylor delivered a lecture prepared by himself and Mr H. W. Lee on "The Development of Photographic Lens Design".

SUMMER MEETING AT THE ROYAL NAVAL COLLEGE, GREENWICH

A meeting of the Society was held at the Royal Naval College, Greenwich, on June 16, 1934, by the kind invitation of the President, Vice-Admiral Sir B. E. Domville, and Professor G. B. Bryan.

The Painted Hall and other historical features were open to inspection by members and their guests.

A lecture on the history of the College was given by Professor G. A. R. Callendar in the forenoon and in the afternoon Professor Bryan delivered an interesting address dealing with certain anomalies and difficulties observed in lecture experiments.

In the Mechanics and Physical Laboratories experiments were shown by Professors Haigh and Bryan and their staffs. Dr L. J. Comrie gave a lecture, with demonstration, on some modern calculating, adding and printing machines.

GUTHRIE LECTURES

The Nineteenth Guthrie Lecture was delivered on May 4, 1934, by Sir Charles Vernon Boys on "My recent progress in Gas Calorimetry", and the Twentieth Guthrie Lecture was delivered on February 1, 1935, by Professor A. H. Compton of Chicago University on "An attempt to analyse Cosmic Rays".

INTERNATIONAL CONFERENCE

An International Conference on Physics, organized by the Royal Society and the Physical Society, was held in the week October 1–6, 1934, in conjunction with the meeting of the Union of Pure and Applied Physics. Meetings for the discussions of papers on Nuclear Physics and on the Solid State of Matter were held in London and Cambridge, those in London taking place either at the rooms of the Royal Society or in the Royal Institution. About 30 papers were contributed by authors from 10 different countries, and no less than 600 persons were enrolled as members of the Conference; 200 of these were visitors from foreign countries.

The proceedings of the Conference are being published by the Society, and Fellows will in due course receive particulars and order-forms.

THE DUDDELL MEDAL

The Eleventh Duddell Medal was presented to Mr H. Dennis Taylor on March 16, 1934, for his work on optical design.

The Council has awarded the Twelfth Duddell Medal to Dr W. Ewart Williams for his work on interferometry.

ANNUAL EXHIBITION

The Twenty-fifth Annual Exhibition was held on January 1, 2 and 3, 1935, at the Imperial College of Science and Technology by the courtesy of the Governing Body.

There were 79 exhibitors in the Trade Section and 32 in the Research and Experimental Section. The attendance during the three days was close on 9000.

The following discourses were given:

"The Architecture of Molecules", by B. Wheeler Robinson, M.A., Ph.D.

"The Problem of Ether Drift", by C. V. Drysdale, C.B., O.B.E., D.Sc., M.I.E.E., F.Inst.P.

"Giant Telescopes", by H. Spencer Jones, M.A., Sc.D., F.R.S.

PROGRESS REPORTS

The Society has for some time past had under consideration the possibility of issuing a series of annual progress reports on physics. The first volume of the series has just been issued and is now on sale. It contains reports on the various main branches of physics, together with a number of reports on special subjects. The volume runs to some 370 pages, the format being that of the *Proceedings*, and the price, bound in cloth, is 12*s*. 6*d*. to non-Fellows and 9*s*. 0*d*. to Fellows of the Society.

REPRESENTATION ON OTHER BODIES

The three members now representing the Physical Society on the British National Committee for Physics are Dr E. Griffiths, Mr T. Smith and Mr J. H. Awbery.

Professor A. Ferguson, Dr D. Owen, Professor G. F. J. Temple and Mr J. H. Awbery represent the Society on the Committee of Management of Science Abstracts.

Professor E. V. Appleton and Dr A. B. Wood are the representatives of the Society on the National Committee for Radio-Telegraphy.

Dr D. Owen and Dr E. Griffiths represent the Society on the Board of the Institute of Physics.

Dr W. M. Hampton is the Society's representative on the Council of the Fourth Glass Convention.

OBITUARY

The Council records with deep regret the deaths of the following Fellows: Madame Curie (Honorary Fellow), Professor A. P. Chattock, Mr T. F. Connolly, Sir Alfred Ewing, Professor W. M. Hicks, Mr C. F. B. Kemp, Mr A. Lynch, Rev. S. A. McDowall, Mr M. J. Salter, Sir Arthur Schuster, Mr G. P. Simpson, Professor the Rev. S. Sircom, Mr J. B. Styring, Dr F. Wenner, Mr F. J. Witts.

MEMBERSHIP ROLL AT DEC. 31, 1934

	Total Dec. 31, 1933	Changes during 1934					Total Dec. 31, 1934
Honorary Fellows	12	Deceased				1	11
Honorary Fellows (Optical Society)	8					–	8
Ex-officio Fellows	4					–	4
Ordinary Fellows	921	Elected			29		
		Student transfers ...			7		
					36		
		Deceased	11				
		Resigned or lapsed ...	25				
					36		
		Net change				–	921
Students	60	Elected			16		
		Transferred to Fellow	7				
		Resigned or lapsed ...	2				
					9		
		Net increase				7	67
Total Membership	1005	Net increase				6	1011

REPORT OF THE HONORARY TREASURER

'HE accounts for the year ended December 31st, 1934 show an excess of income ver expenditure of £95. 7*s*. 10*d*. The estimated value of the Society's publications as been shown in a footnote on the Balance Sheet.

The special account for the suggested publication of annual reports on the progress of physical science now stands at £142. 10*s*. 0*d*. As mentioned in the Report of the Council the first volume of the series has just been published.

The Society's investments have been valued at market prices on December 31st, 1934 through the courtesy of the Manager of the Charing Cross Branch of the Westminster Bank.

(Signed) ROBERT S. WHIPPLE
Honorary Treasurer

March 1st, 1935

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 1934

1933 £ s. d.	EXPENDITURE	£ s. d.	£ s. d.
	To		
535 0 0	"Science Abstracts"		534 0 0
	Normal Publications:		
1759 0 10	"Proceedings" and Exhibition Catalogue	1877 9 1	
106 11 3	Notices	56 9 0	
211 7 5	Editorial and General Expenses	222 12 8	
			2156 10 9
	Special Publications:		
	Printing and Dispatching "Report on Geometrical Optics"		106 12 10
283 16 3	Postage on Normal Publications and General Correspondence		272 16 9
61 2 1	Expenses at Meetings		34 4 4
13 5 0	Periodicals and Library		10 12 6
	Institute of Physics:		
500 0 0	Clerical and other Assistance	500 0 0	
296 2 3	Electricity, Labour and Sundries in connexion with Exhibition	297 11 10	
			797 11 10
112 10 4	Sundry Expenses		101 7 7
40 0 0	*Honoraria to Lecturers*		
24 3 0	*New Die for Duddell Medal*		
46 16 2	*Printing and Dispatching List of Members*		
512 1 9	Balance, being excess of Income over Expenditure, carried forward to Accumulated Fund		95 7 10
£4501 16 4			£4109 4 5

1933 £ s. d.	INCOME	£ s. d.	£ s. d.
	By		
	Subscriptions:		
35 14 0	Entrance Fees	27 6 0	
1645 2 4	Fellows*	1659 5 7	
4 4 0	Voluntary†	4 4 0	
28 17 0	Students	32 5 6	
108 6 1	For "Science Abstracts" and Advance Proofs	106 14 6	
			1829 15 7
96 0 0	Transfer from Life Composition Fund of amounts paid by Fellows now deceased		71 10 0
1072 10 10	Sales of Publications		825 14 6
324 13 9	Advertisements in Publications		374 14 6
	Dividends from Investments	261 19 0	
	Less Transfer to Duddell Memorial Fund	14 0 0	
			247 19 0
236 5 1			
850 3 3	Exhibitors' and other Payments on account of Exhibition		759 10 10
100 0 0	*Royal Society grant for Publications*		
£4501 16 4			£4109 4 5

* Seventy-nine Fellows paid reduced subscriptions by the arrangement with the Institute of Physics, the total rebate being £26. 16*s*. 2*d*.

† Voluntary subscriptions are subscriptions paid by Fellows who compounded for the low sum of £10.

Liabilities

	£ s. d.	£ s. d.	£ s. d.
Sundry Creditors		1420 17 8	
Life Compositions:			
As on December 31, 1933	1622 0 0		
Add Payment during year	21 0 0		
	1643 0 0		
Less Transfer to Income and Expenditure Account of amounts paid by Fellows now deceased	71 10 0	1571 10 0	
Subscriptions paid in advance:			
Members	63 9 11		
Publications	186 16 8	250 6 7	
			3242 14 3
Trust Funds			
W. F. Stanley Trust Fund		334 0 0	
Duddell Memorial Trust Fund		459 12 9	
Optical Convention 1926, *Trust Account*		37 0 9	
Special Reports on Physics Account		142 10 0	
			973 3 6
General Fund			
Accumulated Fund:			
As on December 31, 1933	3180 1 0		
Add Increase in value of Investments	796 0 0		
Add Balance of Income and Expenditure Account	95 7 10	4071 8 10	
A. W. Scott Bequest		199 19 6	
			4271 8 4
			£8487 6 1

Assets

	£ s. d.	£ s. d.
Investments at Market Value on December 31, 1934:		
£1500 Consolidated Stock 2½%	1395 0 0	
£1000 War Loan 3½% Inscribed "A" Account	1090 0 0	
£750 War Loan 3½% Registered	818 0 0	
£650 Funding Loan 4%	786 0 0	
£500 India 3½% Stock	495 0 0	
£400 Lancaster Corporation 3%	392 0 0	
£399 London Midland and Scottish Railway 4% Debenture Stock	431 0 0	
£1000 London Midland and Scottish Railway 4% Preference Stock	860 0 0	
£500 London and North Eastern Railway 4% Debenture Stock	540 0 0	
£150 Southern Railway 5% Debenture Stock	198 0 0	
£300 Southern Railway Preferred Ordinary Stock	237 0 0	
£442 Southern Railway Deferred Ordinary Stock	97 0 0	
£400 War Loan 3½% Inscribed "B" Account	436 0 0	7775 0 0
Dividends due from Investments		35 4 9
Inland Revenue—Income Tax claimed for 1934		15 17 2
Subscriptions due		35 9 0
Sundry Debtors		115 7 0
Cash at Bank: Deposit	200 0 0	
Current	308 18 2	
Cash in Hand	1 10 0	510 8 2
		£8487 6 1

Stock of publications on 31*st December*, 1934. *At Honorary Treasurer's valuation* . . . £1395 3 3

ROBERT S. WHIPPLE, *Honorary Treasurer.*

We have audited the above Balance Sheet and have obtained all the information and explanations we have required. We have verified the Bank Balances and the Investments. In our opinion such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Society's affairs according to the best of our information and the explanations given to us and as shown by the books of the Society.

KNOX, CROPPER & CO.,
Chartered Accountants.

SPENCER HOUSE, SOUTH PLACE, E.C. 2
1*st March*, 1935.

LIFE COMPOSITION FUND ON DECEMBER 31ST, 1934

	£	s.	d.
55 Fellows paid £10	550	0	0
1 Fellow paid £15	15	0	0
15 Fellows paid £21	315	0	0
1 Fellow paid £30	30	0	0
21 Fellows paid £31. 10s.	661	10	0
	£1571	10	0

W. F. STANLEY TRUST FUND

	£	s.	d.		£	s
Carried to Balance Sheet	334	0	0	£300 Southern Railway Preferred Ordinary Stock	237	
				£442 Southern Railway Deferred Ordinary Stock	97	
	£334	0	0		£334	

DUDDELL MEMORIAL TRUST FUND

Capital

	£	s.	d.		£	s
Carried to Balance Sheet	436	0	0	£400 War Loan 3½% Inscribed "B" Account	436	

Revenue

	£	s.	d.		£	s
Honorarium to Medallist	15	0	0	Balance on December 31st, 1933	24	1
Balance carried to Balance Sheet	23	12	9	Interest	14	
	£38	12	9		£38	1

OPTICAL CONVENTION, 1926, TRUST ACCOUNT

	£	s.	d.		£	s
Balance carried to Balance Sheet	37	0	9	Balance on December 31st, 1933	31	1
				Sales of Publications	5	
	£37	0	9		£37	

A. W. SCOTT BEQUEST

	£	s.	d.		£	s
Expenses in connexion with Library	12	5	7	Balance on December 31st, 1933	212	
Balance carried to Balance Sheet	199	19	6			
	£212	5	1		£212	

"SPECIAL REPORTS ON PHYSICS" ACCOUNT

	£	s.	d.		£	s
Balance carried to Balance Sheet	142	10	0	Balance on December 31st, 1933	142	
				Donations during 1934		
	£142	10	0		£142	